

REMARKS

Claims 1-5 were presented for examination in the outstanding Office Action. Claim 1 is amended. Accordingly, Claims 1-5 remain for further consideration.

The Claimed Invention:

Claim 1 concerns a method of manufacturing a web having an applied pattern of add-on material. The method includes moving a base web along a first path, preparing a slurry of add-on material from the same slurry used for the base web, and repetitively discharging the slurry of add-on material on the moving base web. The slurry of add-on material is prepared by cooking a fibrous cellulosic material, bleaching that material, pressing the cooked and bleached material to remove liquid, drying the pressed material, milling the dried material to produce fibers of a desired size, and mixing the milled material with water to hydrate the material and produce a slurry.

The Obviousness Rejections:

Claims 1-5 presently stand rejected under 35 U.S.C. § 103(a) as being obvious to one of ordinary skill in the art at the time the invention was made considering the Gautam et al. patent (U.S. Pat. No. 5,977,691) in view of the Münchow patent (U.S. Pat. No. 6,214,166) or the Blomqvist patent (U.S. Pat. No. 3,596,840), or the Tomikawa et al. publication (U.S. Pat. Publ. Appl. No. 2005/0167534), or the Smook publication "Handbook for Pulp & Paper Technologist".

The Office Action takes the position that "[t]he only difference between the claimed invention and the Gautam et al. invention is that the way in which the add-on material is ground, i.e., Gautam et al. teach a wet grinding process while the present application teaches the dry comminution of the add-on material."¹ The Office further argues that wet and dry grinding processes are functionally equivalent processes² and relies on the following references in the alternative: (i) the Münchow patent; (ii) the Tomikawa et al. publication; or (iii) the Blomqvist patent. The Smook text is further added to the combination of references with respect to Claims 4 and 5.

The Office Action acknowledges Applicants' earlier explanation that the prior art teaches away from refining cellulosic fibers in the dry state, but then argues that:

While this may be true, the fibers of the present invention are not been [sic] used to make the base paper **but as an additive**, i.e., and add-on and therefore, the one of ordinary skill in the art would not need to be concerned with the same variables, i.e. fibrillation, generation of radicals and plasticizers, the variables discussed by applicants in Paragraph 6. [Emphasis in original.]³

Response to Obviousness Rejection As To Independent Claim 1:

Applicants traverse this obviousness rejection.

a. Differences Between the Claimed Invention and the Prior Art:

As noted, the Office Action argues that the only difference between the claimed invention and the Gautam et al. invention is the way that the add-on material is ground.

¹ Office Action, p. 3.

² Office Action, p. 3.

³ Office Action, p. 6-7.

With all due respect, that statement is wrong. More specifically, Claim 1 provides, in pertinent part:

said step of preparing a slurry of add-on material including:
cooking a fibrous cellulosic material,
bleaching the material,
pressing the cooked and bleached material to remove liquid,
drying the pressed material,
milling the dried material to produce fibers of a desired size, and
mixing the milled material with water to hydrate the material and
produce a slurry.

The foregoing excerpt from Claim 1 unequivocally demonstrates that there are multiple differences between Claim 1 and the Gautam et al. patent. For example, in Claim 1, the cooked and bleached material is pressed to remove liquid; not so in the Gautam et al. patent. In Claim 1, the pressed material is dried; no such drying in the Gautam et al. patent. In Claim 1, dried material is milled; not so in the Gautam et al. patent which uses wet grinding. In Claim 1, the milled material is mixed with water to hydrate it and produce a slurry; not so in the Gautam et al. patent which acts only on an existing slurry.

Accordingly, there are multiple differences between the invention recited in Claim 1 and the Gautam et al. patent in addition to the way in which the fibers are ground. Those differences are neither taught nor suggested by the applied prior art.⁴

⁴ Declaration by Rajesh K. Garg and Tony Phan Under 37 C.R.F. § 1.132, filed March 13, 2008 (the "Inventors' Declaration"), ¶ 15.

b. *Differences Between Wet Grinding and Dry Grinding In Paper-Making:*

The Office Action argues that wet grinding and dry grinding are functionally equivalent and, for support, relies on the Münchow patent, the Tomikawa et al. publication, and the Blomqvist patent.

In the first instance, dry grinding is not the functional equivalent of wet grinding in the claimed process. The slurry of a paper-making process typically includes 95% water. Applicants respectfully submit that it is nonsensical to argue that dry grinding can be applied to a product containing 95% water. Furthermore, dry grinding by itself may result in burning of the pulp, a fact which precludes its use where brightness is an important characteristic.⁵

Turning to the Blomqvist patent, a process is described for producing cellulose fluff -- a disintegrated dry cellulose fiber product used as an absorbent material in such items as diapers, absorbent pads and rolls, and the like. (Abstract). With regard to wet grinding, Blomqvist merely discloses, "it is surprising that it is possible to treat dry pulp in a disk refiner in which otherwise only wet pulp can be treated." (Column 1, Lines 58-60).⁶ Moreover, Blomqvist acknowledges that pulp can be burnt in the refiner – a highly negative complication in the context of the claimed invention.⁷

As to the Münchow patent, the disclosed process is used for recycling fillers and coating pigments during the preparation of paper, paperboard and cardboard. Those fillers and pigments are found in the residual water sludges from coating-plant

⁵ Inventors' Declaration, ¶ 9, ¶ 13.

⁶ Inventors' Declaration, ¶ 8.

⁷ Inventors' Declaration, ¶ 9.

waste waters, deinking plants, internal water treatment plants or separators. A pigment slurry obtained from the process is then used to prepare a coating compound for the paper industry or as an additive to paper stock for papermaking. (Abstract). Münchow discloses that the residual water sludges are first given desired whiteness and fineness by mixing and then milling together with (i) fresh pigments, (ii) fresh fillers in the form of powders, (iii) fresh-pigments containing slurries, and/or (iv) fresh-filler containing slurries. That processed sludge is then used as a filler or coating pigment. (Column 3, Lines 17-23). Münchow further discloses, "The mineral fillers and pigments mentioned are usually milled to give the desired grain size in a wet or dry milling method." (Column 3, Lines 23-25).⁸

Plainly, Münchow is not concerned with grinding fibers, either wet grinding or dry grinding, and fails to provide any evidence of the alleged equivalence of wet and dry grinding to attain desired fiber length in a papermaking process, specifically of an add-on material comprising fibrous cellulosic material.

Turning to the Tamikawa publication, a dry grinding system is disclosed which is suitable for use in production, for example, of abrasives or filler; as well as a dry grinding method employing the system. (Page 1, Paragraph [0003]). Tomikawa discloses that, in general, ceramic powder such as alumina powder or silicon carbide powder (employed as, for example, abrasive or fillers), is produced through grinding of raw-material powder having a large average particle size. (Page 1, Paragraph [0003]). Tomikawa further states, "Grinding processes include a dry grinding process and a wet grinding process. When a dry product is to be produced by

⁸ Inventor's Declaration, ¶ 11.

means of a grinding process, in many cases, a dry grinding process, which does not require a drying step, is employed." (Page 1, Paragraph [0003]).⁹

When fairly considered in context, Tomikawa does not provide any evidence of the equivalence of wet and dry grinding of fibers, or equivalence of wet and dry grinding of fibers in a papermaking process. Rather, Tomikawa indicates that raw-material ceramic powder having a large average particle size may be ground to produce ceramic powder (such as alumina powder or silicon carbide powder), where the ceramic powder may then be used, for example, as an abrasive or filler.

Applicants use of the dry grinding process sequence in the add-on process disclosed in the present application gives rise to synergy in the claimed process. More specifically, the additional steps of pressing out water, drying fibers, milling dried fibers, and then mixing the milled fibers with water to make a new slurry would seem to be contraindicated as commercially expensive, and undesirable. Nevertheless, the presently claimed invention provides fibers having a narrow size range that gives rise to consistent and predictable performance in the resulting paper. Moreover, unexpectedly, less energy is consumed, and an acceptable material is attained in a shorter time when using the claimed process than when a wet grinding process is used.¹⁰

To summarize, none of the applied secondary references fairly establish either a functional equivalence between the wet grinding process for add-on fibers and the dry grinding process sequence for fibers, or a functional equivalence

⁹ Inventors' Declaration, ¶ 12.

¹⁰ Inventors' Declaration, ¶ 21.

between the wet grinding process for fibers in a paper-making process and the dry grinding process sequence for fibers in a paper-making process.

c. *The Supplemental References Teach Away From the Claimed Invention:*

Where the prior art is shown to teach away from a claimed invention, that fact is indicative of nonobviousness. As expressed by the Supreme Court, there is a "corollary principle that when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious."¹¹ Relying on *KSR*, the Federal Circuit categorizes "the presence of a motivation to combine, or avoid combining, prior art teachings" as a relevant secondary consideration of obviousness.¹²

The Office Action dismissed Applicants discussion that the prior art teaches away from the claimed invention, and argued that: "While this may be true, the fibers of the present invention are not been used to make the base paper, ***but as an additive . . .***"¹³

On the contrary, as Claim 1 states, the base web is formed from a paper-making slurry and the slurry of add-on material is formed from the paper-making slurry using the additional processing steps set forth in Claim 1. Accordingly, the Office Action fails to properly account for the fact that the prior art teaches away from the proposed combination of prior art references.

¹¹ *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 405, 127 S.Ct. 1727, 1740 (2007).

¹² *Power-One, Inc., v. Artesyn Technologies, Inc.*, ____ F.3d ____, 94 U.S.P.Q.2d 1241, 1246 (Fed. Cir., 2010).

¹³ Office Action, p. 6.

Using the position articulated by the Supreme Court, the teaching away analysis described in the Inventors' Declaration demonstrates nonobviousness of Claim 1. Even if teaching away is relegated to a secondary consideration as a motivation to avoid combining prior art references, Applicants discussion of the motivation to avoid combining the secondary references is unrebutted, and when combined with the additional differences between the claimed invention and the prior art, establishes a convincing case that the invention of Claim 1 is nonobvious and, therefore, allowable.

Accordingly, Applicants respectfully submit that Claim 1 is allowable.

Dependent Claims 2-5:

Claims 2-5 depend directly or ultimately from Claim 1 and are allowable therewith. Moreover, each of Claims 2-5 add further additional features to the process recited in Claim 1 thus providing further and independent bases for allowability of each of the dependent claims.

Here, the Applicants have explained that the prior art teaches away from the claimed invention.¹⁴ Those skilled in the art appreciate the difference between fibers, fillers, finely ground cellulose used as fillers, pigments, and ceramic powders.

¹⁴ Inventors' Declaration, ¶¶ 6-19.

CONCLUSION:

In view of the foregoing, Applicants respectfully submit that Claims 1-5 are in full condition for allowance.

Respectfully submitted,

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